

Notice of Allowability

Application No.

10/660,588

Examiner

William P. Fletcher III

Applicant(s)

OZIN ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the election of Nov. 9, 2006.
2. ☒ The allowed claim(s) is/are 52-74.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 9/12/2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

SEE ATTACHED

DETAILED ACTION

Election/Restrictions

1. Applicant's election of claims 52-74 in the reply filed on November 9, 2006, is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 17-51, 75-86, and 101 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on November 9, 2006.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on September 12, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

4. The drawings were received on September 12, 2003. These drawings are acceptable.

EXAMINER'S AMENDMENT

5. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ralph A. Dowell (Reg. No. 26,868) on December 18, 2006.

The application has been amended as follows:

Claims 17-51 (cancelled).

Claim 52 (currently amended) A method of synthesizing a composite material of a colloidal crystal and a substrate, comprising:

- a) providing a substrate having a surface with a selected surface relief pattern;
- b) dipping said substrate into a liquid dispersion containing colloidal particles of selected shape and size, wherein said liquid dispersion includes a solvent having an effective evaporation rate, and wherein evaporation of said solvent induces directional mass transport of said colloidal particles within said relief pattern, wherein said colloidal particles spontaneously self-assemble and crystallize between raised features of said surface relief pattern; and
- c) removing said substrate from said liquid dispersion.

Claim 56 (currently amended) The method according to claim ~~[[53]]~~ 55 wherein said effective polymeric material ~~includes~~ is selected from the group consisting of: silica sol ~~(from tetramethoxysilane and 0.1N oxalic acid (3:1 w/w))~~, organic modified silica sol ~~(from mixture of 3 (glycidoxypropyl)trimethoxysilane, tetramethoxysilane and 0.1N oxalic acid 5:1:1 w/w)~~, ~~[[or]]~~ and pre-polymer ~~(NOA-60 or NOA-73 polyurethane)~~.

Claim 62 (currently amended) The method according to claim 61 wherein said particles have diameters in a range from about 600 nm to about 2500 nm, ~~including stirring said liquid dispersion.~~

Claims 75-86 (cancelled).

Claim 101 (cancelled).

6. Claims 52-74 are allowed.

7. The following is an examiner's statement of reasons for allowance: While the formation of the composite materials of a colloidal crystal and a substrate are known as demonstrated by the references in the IDS, the prior art neither teaches nor suggests neither the method of claim 52 in which evaporation of the solvent induces directional mass transport of the colloidal particles within the relief pattern, nor the method of claim 65 in which the solution is agitated in such a way as to reduce sedimentation of the

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colloidal particles but not disturb a meniscus that is formed between the planar surface and the liquid dispersion of colloidal particles. See also Velev et al., attached, as representative of the state of the art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571) 272-1419. The examiner can normally be reached on Monday through Friday, 0900h-1700h.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



William Phillip Fletcher III
Primary Examiner
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December 19, 2006